AIPHONE

LEF Series
OPEN VOICE SELECTIVE CALL INTERCOM

Models: **LEF-3** (3-call master)
LEF-5 (5-call master)
LEF-10 (10-call master)
LEF-10S (10-call master w/all call button)

* LEF-5W, LEF-10W & LEF-10SW: w/Terminal Box prewired (Not available in North America)

INSTALLATION & OPERATION MANUAL

PRECAUTIONS

⃠ Prohibited ⃠ Do not dismantle unit ⃠ Keep unit away from water ❗ General precautions

⚠WARNING (Negligence could result in death or serious injury.)

1. Do not dismantle or alter the unit. Fire or electric shock could result.
2. Keep the unit away from water or any other liquid. Fire or electric shock could result.
3. For power supply, use Aiphone power supply model specified for use with system. If non-specified product is used, fire or malfunction could result.
4. Do not connect any non-specified power source to the +, - terminals. Also, do not install two power supplies in parallel to a single input. Fire or damage to the unit could result.
5. Do not use power supply with a voltage other than specified. Fire or electric shock could result.
6. Keep AC cord from being marred or crushed. If the AC cord is damaged, fire or electric shock could result.
7. Do not plug or unplug unit with wet hands. Electric shock could result.
8. Insert AC plug completely and securely into AC outlet. Otherwise, fire or electric shock could result.
9. Periodically check for and remove dust on the power plug. If dust is left, it could cause the power plug to heat up, resulting in fire.
10. Do not put any metal or flammable material into the unit through the openings. Fire, electric shock, or unit trouble could result.

⚠CAUTION (Negligence could result in injury to people or damage to property.)

1. Do not install or make any wire terminations while power supply is plugged in. It can cause electrical shock or damage to the unit.
2. When mounting the unit on a wall, install the unit in a convenient location, but not where it could be jarred or bumped. Injury could result.
3. Before turning on power, make sure wires are not crossed or shorted. If not, fire or electric shock could result.
4. Do not place or install the unit in the locations subject to frequent vibration or impact. If the unit falls, injury to people or damage to the unit could result.
5. Do not put anything on the unit or cover the unit with cloth, etc. Fire or unit trouble could result.
6. Do not install the unit in any of the following locations. Fire, electric shock, or unit trouble could result.
   * Places under direct sunlight (except door station).
   * Near heating equipment that varies in temperature.
   * Places subject to dust, oil, chemicals, hydrogen sulfide (hot spring).
   * Places subject to moisture and humidity extremes, such as bathrooms, cellars, greenhouses, etc.
   * Places where the temperature is quite low, such as inside a refrigerated area or in front of an air conditioner.
   * Places subject to steam or smoke (near heating or cooking surfaces).
   * Where noise generating devices such as dimmer switches or inverter electrical appliances are closeby.
   * Locations subject to frequent vibration or impact.
   * Locations subject to extremely powerful electric fields.
7. The unit must be installed and wired by a qualified technician.

⚠GENERAL PRECAUTIONS

1. Keep the unit more than 1m (3.3') away from radio or TV sets.
2. Keep the intercom wires more than 30cm (12") away from AC 100-240V wiring. AC induced noise and/or unit malfunction could result.
3. Comply with all third party manufacturing specifications that will be used with this system.
4. Using a mobile phone or professional-use radio equipment such as walkie-talkie close to the system may cause a malfunction.
5. The unit can be damaged if dropped. Handle with care.
6. The unit will not work during power failure.
7. In areas where broadcasting station antennas are closeby, the intercom system may be affected by radio frequency interference.
8. All the units, except for door stations, are designed for indoor use only. Do not use at outdoor locations.
9. This product, providing door release, should not be used as a crime prevention device.

1 SYSTEM OUTLINE & COMPONENTS

■ System outline

The LEF is a flexible Open Voice Selective Call Intercom system which integrates any combination of master and sub stations. The system features selective calling from any master with handsfree reply, call-in and LED from a variety of sub stations, selective door release (except LEF-3), and a variety of other optional features.

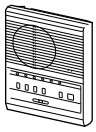
■ Package contents

• LEF intercom (LEF-3, 5,10 or 10S) • Packet of screws • Installation & Operation Manual • China RoHS paper

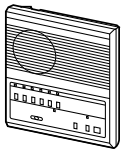
■ Components available

- **Intercoms:** Masters or subs, intermixable

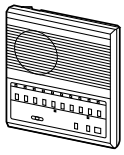
Master stations



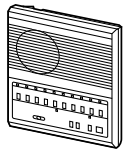
LEF-3
3-call



LEF-5
5-call



LEF-10
10-call



LEF-10S
10-call
w/all call button

Sub stations



LE-D
Surface mt.

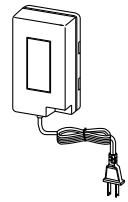


LE-DA
Flush mt.



LE-A
LE-AN
1-call(w/Priv.)

Power supply



PS-1225UL
PS-1225S
PS-1225
12V DC, 2.5A power supply
PS-1215DIN, 12V DC, 1.5A

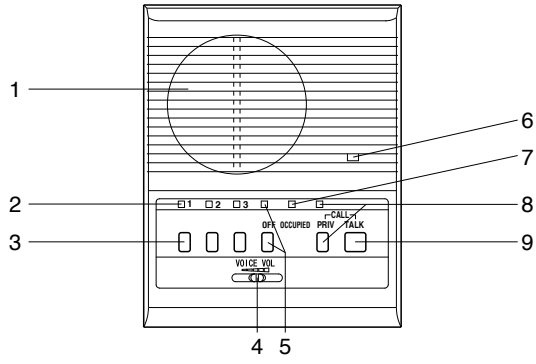
- Additional **Sub stations:**
  LE-DL: Surface-mount w/anodized aluminum panel
  ★ AH-108 8Ω horn speaker w/**LT-1** matching transformer & NP-25V (33μfd,bp,25V)

- **All Call & Background Music (with LEF-10S):**
  BG-10C: All call, chime & music adaptor.

2 NAMES & FEATURES

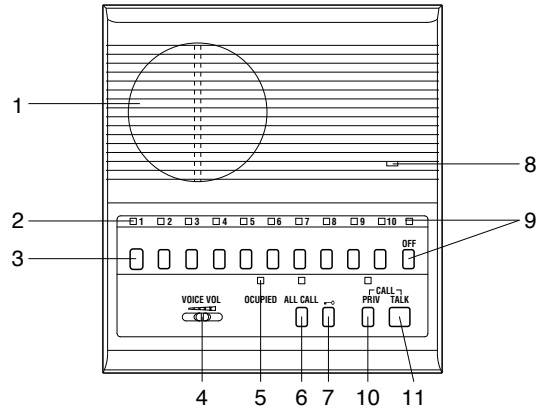
■ Names & functions

LEF-3



1 Speaker
2 Call-in LED (3)
3 Station-Select button (3)
4 Voice volume control
5 OFF button (w/ON LED)
6 Microphone (initiator only)
7 In-use LED (occupied)
8 Privacy button & LED indicator
9 Talk (listen) button

LEF-5, 10, 10S



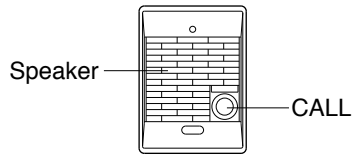
1 Speaker
2 Call-in LED (5 or 10)
3 Station-Select button (5 or 10)
4 Voice volume control
5 In-use LED (occupied)
6 All Call transmit button & LED (**LEF-10S** only)
7 Door release button
8 Microphone (initiator only)
9 OFF button (w/ON LED)
10 Privacy button & LED indicator
11 Talk (listen) button

★ LEF-5: 5 station buttons and OFF.

■ Features

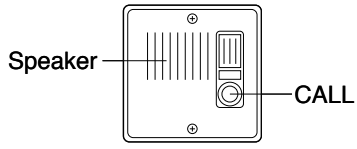
- Four LEF master stations, intermixable.

Models	Capacity	Door release	All Call transmit
LEF-3	4 stations		
LEF-5	6 stations	X	
LEF-10	11 stations	X	
LEF-10S	11 stations	X	X



LE-D

- **Optional features:**
  * All Call, chime & Music distribution (w/**BG-10C** adaptor, LEF-10S only)
  * Selective door release (w/**RY-PA** relay, 1 per door, excluding LEF-3)
  * 8 Ω horn speaker (**AH-108** w/**LT-1** transformer & **NP-25V** capacitor)
  * External signaling when door/sub calls (w/**RY-AC/A** and external device)

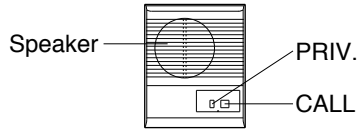


LE-DA

WIRING:

- **Loop-wired system with multi-conductor shielded cable.**

All-master system: 4 common wires + 1 wire per number of stations in the system.
If All Call is included: Add 4 additional common wires (P1~P3, Y).
If Door Release is included (LEF-5/10/10S): Add 1 common L + 1 individual wire for each door to be released (K# terminals).



LE-A, 1-call
LE-AN, w/ PRIVACY

Single-master system: 2 wires homerun* from each sub to the master.
Leave jumpers between E & – installed.
*NOTE: It is recommended even in a single master system that 3 wires are used for all sub stations in the system, and that the E & – jumpers are removed. This ensures that the wiring is proper in the event of system expansion in the future.

Intermixed system with masters and subs: 3 wires from each sub to the nearest master, or 2 common + 1 individual wire per station on a loop. Remove jumpers between E & – from all stations in a multi-master system.

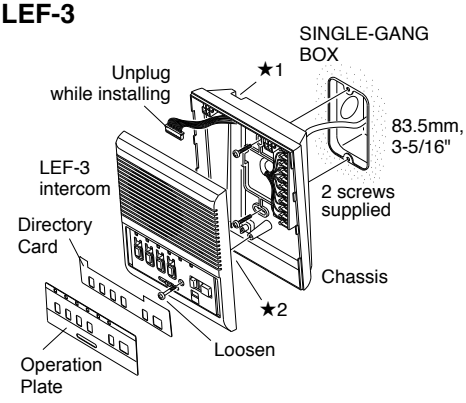
■ Wire Reference Chart

Standard Communication (Max. # of stations)				With selective door release and/or camera call-up (incl. K wires b/n masters, max.)	
Model #	**# of Conductors**	**Wire # (22AWG)**	**Wire # (18AWG)**	**# of Conductors**	**Wire # (22AWG)**
LEF-1C	12	822212	x	x	x
LEF-3C	12	822212	x	x	x
LEF-5C	15	822215	x	20	822220
LEF-10C	20	822220	x	30	822220 + 822210
LEF-3	9	822210	x	x	x
LEF-5	12	822212	x	20	822220
LEF-10	20	822220	x	30	822220 + 822210
LEF-10S	20	822220	x	30	822220 + 822210
LE-A	3	822203	821803	x	x
LE-B	3	822203	821803	x	x
LE-D	3	822203	821803	x	x
LE-DA	3	822203	821803	x	x

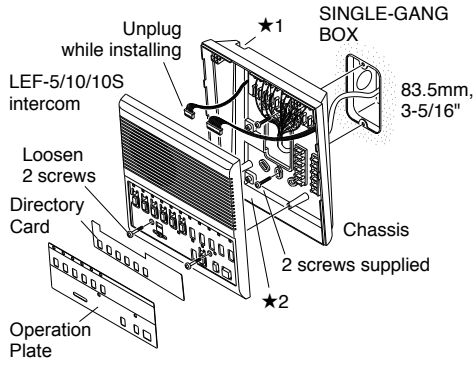
3 MOUNTING

■ **Before actually installing the LEF system, the contents on pages 4 ~ 12 must be thoroughly read and understood.**

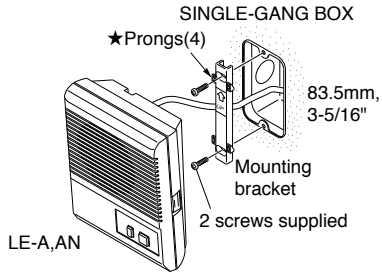
• **LEF-3**



• **LEF-5, 10, 10S**



• **LE room subs**

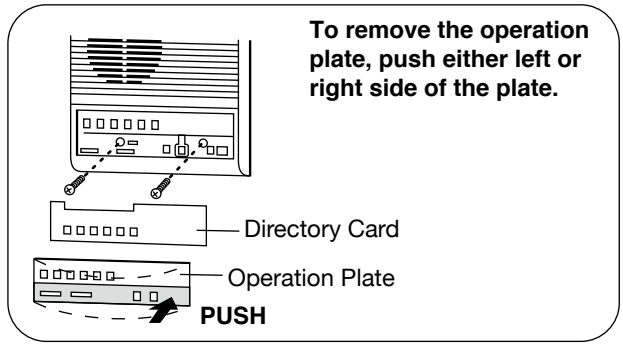


★ 1, 2 : When running cable on the surface, pass cable through the top or bottom of the chassis and fasten with the wire clamps (attached, one outside and one inside chassis.).

★ Slide LE sub down until it locks onto the prongs.

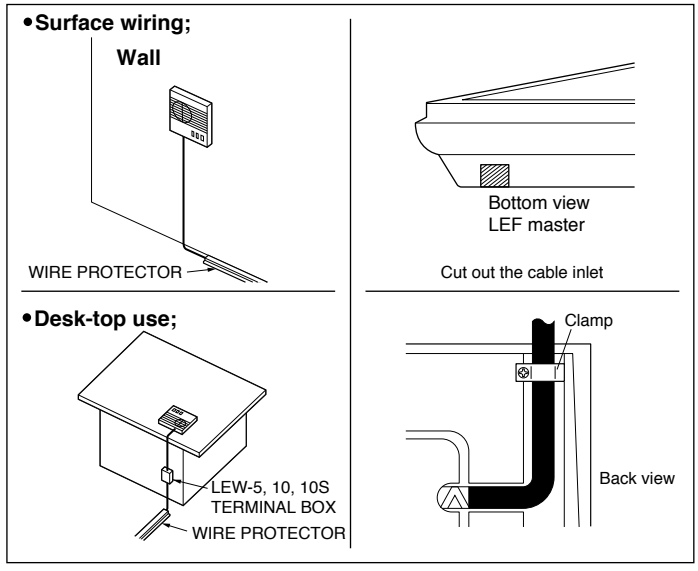
■ Wall-mounting

1. Remove the operation plate by pressing down on one side and lifting off from the middle. Remove the paper directory card as well, and set aside with operation plate.
2. Loosen the two screws※ in the front case. (Do not remove screws from front case.)
3. Disconnect LEF intercom from the chassis by carefully unplugging the connectors.
4. Mount the back chassis to a single-gang box.
5. Terminate wires on screw terminals inside the chassis.
6. Reconnect intercom with connectors and mount to chassis, tightening the two screws※. Replace the directory card and the operation plate. (Make sure the operation plate is under the small tab at the top when reinstalling.) Peel protective covering off of operation plate.
   ※ LEF-3 is one screw.



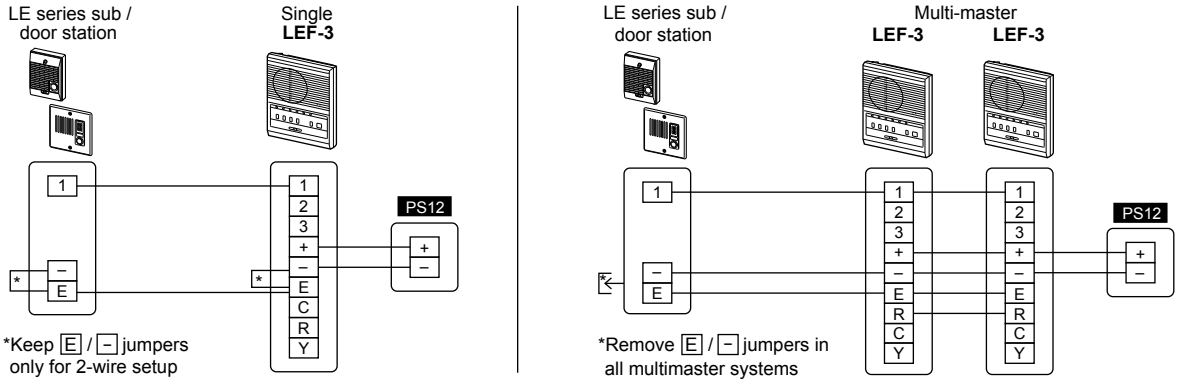
■ Desk mount with LEW Desktop Terminal Box

1. Plug in CN1 & CN2 connectors of LEW-5, LEW-10, or LEW-10S to multi-pin sockets inside LEF master (Connectors from chassis remain disconnected). Use clamps on LEF back case to secure the cable.
2. Install the terminal box in a convenient place with the field wiring connected inside. The cord from the box to the LEF unit is approximately 2.5m (7'7") long.
3. Please note that the K terminals are not included in the LEW Desktop Terminal Box. The K terminals are only located in the back of the LEF master.



4 WIRING DIAGRAMS - Important Wiring Rules

Door or sub station to master station intercom wiring, single or multi-master station

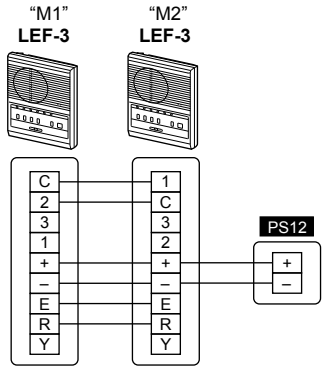


Intercom Operation:
- To initiate call at sub station, push the station's Call button.
- To answer sub station call at LEF-3, push the appropriate Station Selector button.
- To talk to sub station, press and hold TALK and release to listen.

Notes: 1 from a sub station can wire to any number 1, 2, or 3 but never C.
C is only used for internal communication between master stations. See below.

Master to Master intercom wiring, internal communication between master stations

Important: Never wire C to another master station's C terminal.

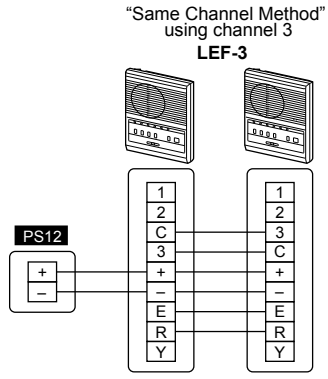


Choose either method.

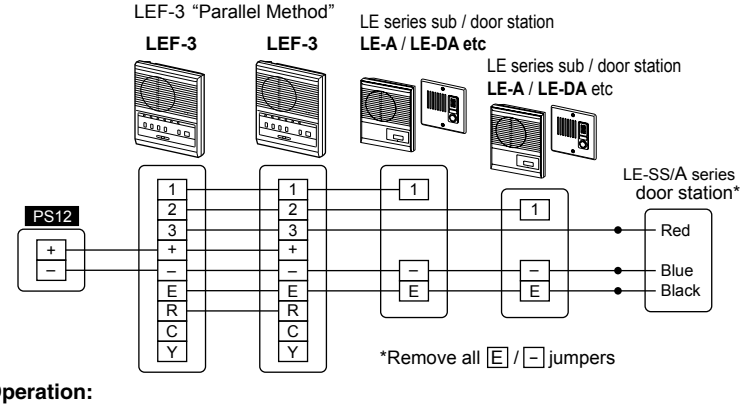
Operation notes:

When operating M1, push #2 Station Selector button to listen to "M2", press and hold "TALK" to talk.
When operating M2, push #1 Station Selector button to listen to "M1", press and hold "TALK" to talk.

When operating either master station utilizing the "same channel method," push #3 Station Selector button to listen to the other master station, press and hold "TALK" to talk.



Master to sub intercom only, no internal communication between master stations



LE-SS/A series stations use colored leads

Red
Blue
Black

1 is red lead
– is blue lead
E is black lead

Notes:

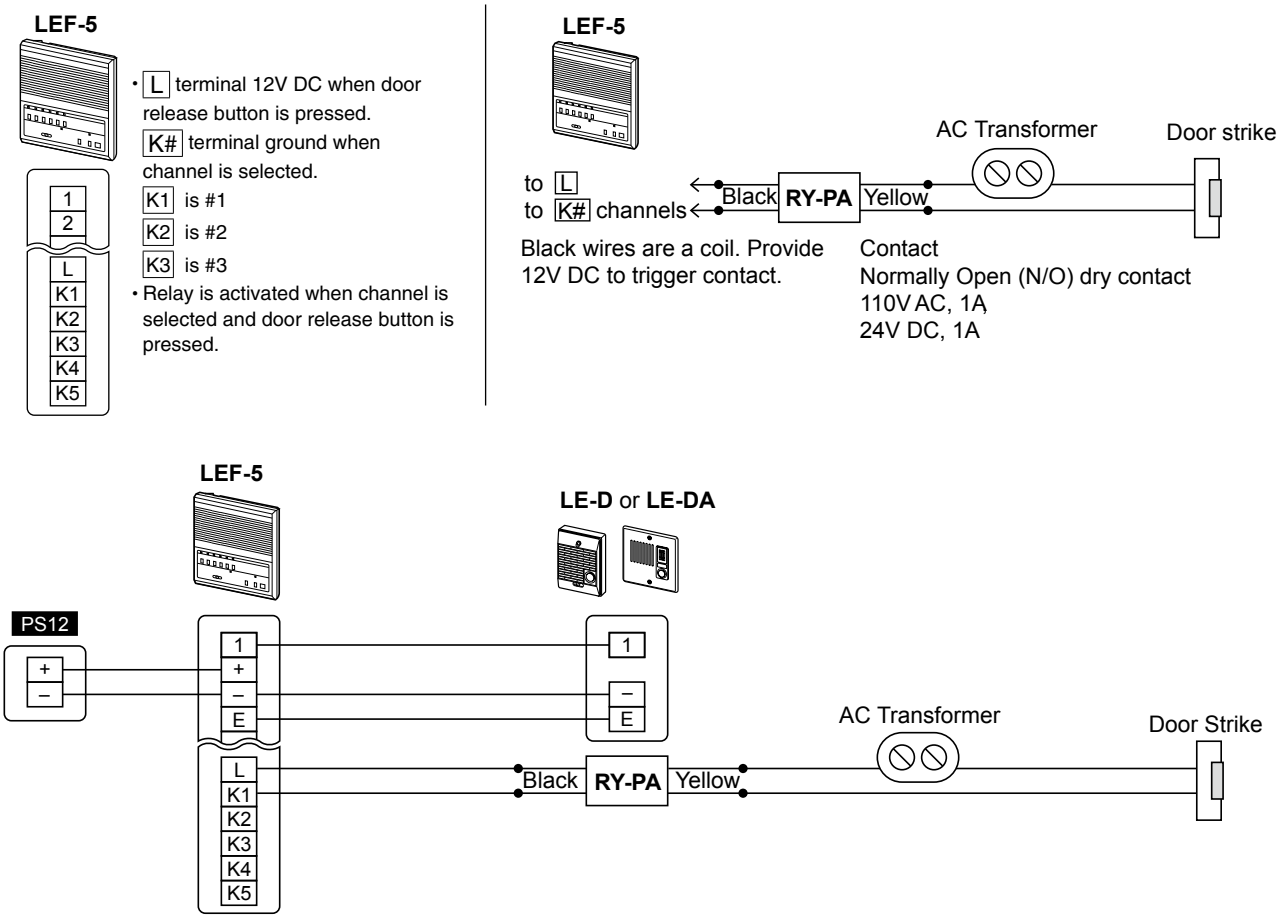
1 from a sub station can go to 1, 2 or 3 but never C.
Only master stations can answer calls and communicate with sub stations.

*LE-SS/A is North America only.

Intercom Operation:
- To initiate call at sub station, push the station's Call button.
- To answer sub station call at LEF-3, push the appropriate Station Selector button.
- To talk to sub station, press and hold TALK and release to listen.

PS12 PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

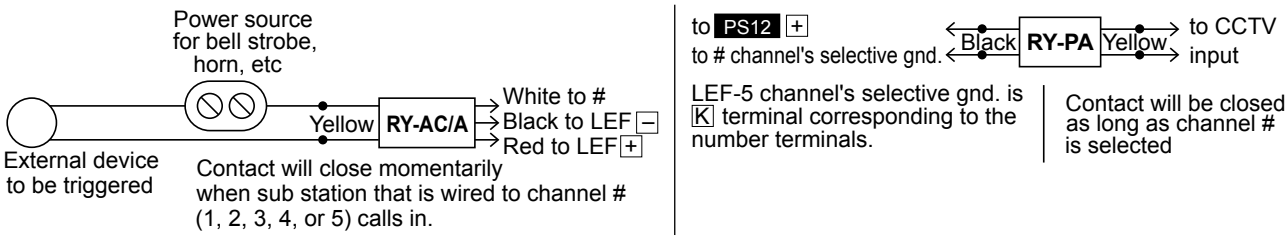
Door release relay wiring, one relay per door station



Operation:

- To release the door, push the Station Selector button, then press "**0**" to release.
- When the coil gets 12V DC, the contact changes state, momentarily. Use the relay to trigger a Request-To-Exit input on any standard access control system, or close an open circuit (shown above).

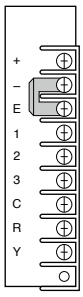
External Signaling and CCTV relay wiring, one of either relay (or both) per door station



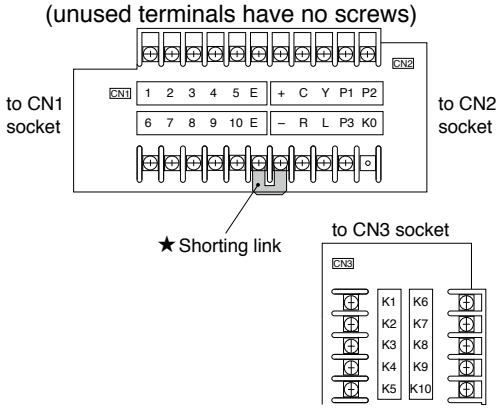
PS12 PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

5 WIRING

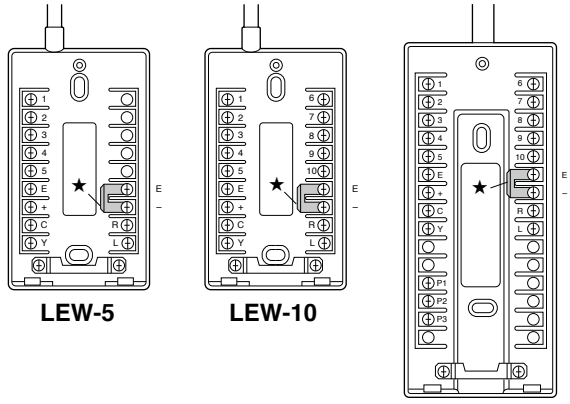
LEF-3



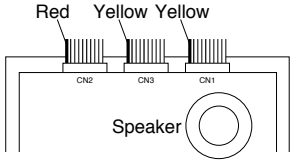
LEF-5, LEF-10, LEF-10S
(unused terminals have no screws)



* LEW-5, LEW-10, and LEW-10S Terminal boxes are not equipped with K1 ~K5, K1 ~ K10 terminals.



LEF-10, 10S
Front case back view



*** IMPORTANT: The shorting link between the E and – terminals must be removed on all units when two or more master stations are included in the system. Leave it attached only in 1-master systems with 2 conductor homerun wiring to each sub station.**

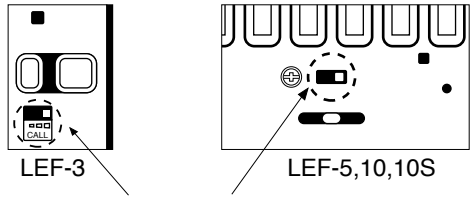
■ Terminal definitions

1 ~ 10: Station number, establishes communication to other LEF masters (to C terminal) or LE subs (to 1 terminal)
C: "CALL", Call receive from another master (and All Call/Chime/Music reception)
E: Common communication line
R: Activates occupied LED to indicate when any master is ON (line drops to 0V DC when any master is on.)
Y: Occupied mode control during All Call (becomes +9V DC during All Call)
L: Door strike activation (becomes +12V DC when "0" button is pressed)
+, –: 12V DC power supply connection. Use Aiphone PS-1225UL, PS-1225S, PS-1225, or PS-1215DIN.
P1: All Call control (becomes +10V DC when All Call button is pressed and activates pretone)
P2, P3: All Call transmit of audio path from initiating master to BG-10C

★ **K1 ~ K5** (LEF-5), **K1 ~ K10** (LEF10, 10S): Selective control terminal, used for selective door release (w/RY-PA) from the master to multiple door stations. (K# terminal becomes ground (–) when corresponding station number is pressed.)

■ Call tone adjustment

3-position volume switch, located under operation plate.
Adjusts call tone volume to low (far left), medium, high (far right).

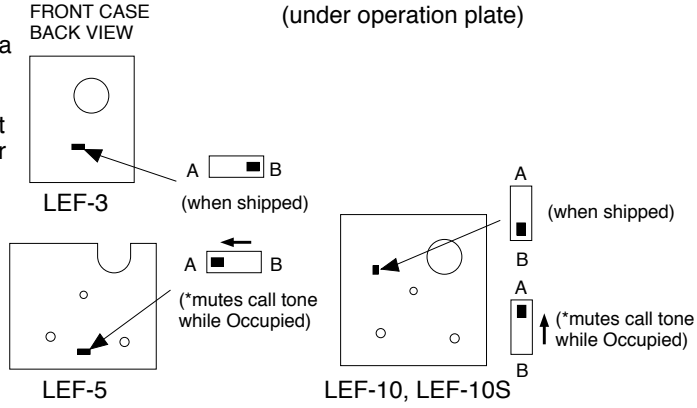


■ Selector switch for Call Tone in Occupied Mode

LEF surface mount master stations are set in the "B" position from the factory. This allows a sub call-in tone to be heard at a muted level while the master is in the occupied mode.

*If a BG-10C is included in the system, the switch must be set to the "A" position, which will mute the call tone while the door chime is heard throughout the system. Otherwise, the chime and call tone will be heard simultaneously.

"A" position: Mutes call tone at master while system is in occupied mode.
"B" position: Call tone is heard when master is in occupied mode.



■ LEF All-Master configuration

LEF all-master systems are designed to be wired in a looped fashion from the first to last master.

• A single-master system can be wired with 2 conductors homerun from each sub. (Wire #822202 or #821802 in North America)

■ Cable requirements

Use multi-conductor cable with an overall shield, non-twisted, 0.65mm to 1.0mm (22AWG to 18AWG), to accommodate the maximum number stations in the system, each of which requires one designated wire, plus up to nine common wires per system, depending on features used. Selective door release adds one additional wire per door being released. Use the gauge specified for the maximum distance between the two farthest stations.

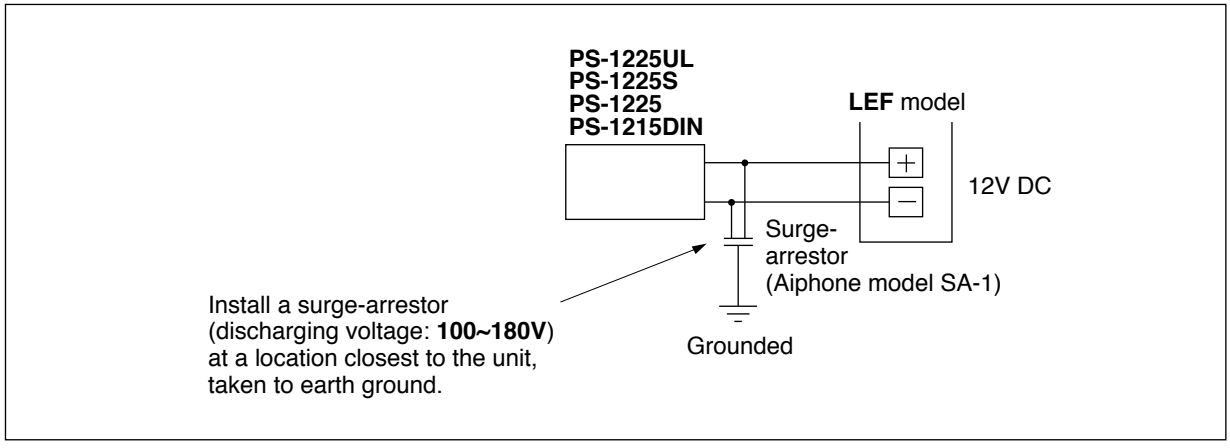
■ Power supply

The entire LEF system can be powered by one power supply (PS-1225UL, PS-1225S, PS-1225, or PS-1215DIN), located near the center of the wire run.
For a system including the All Call and Chime with the BG-10C, one PS-1225UL, PS-1225S, or PS-1225 will power the BG-10C and the LEF system.

■ Surge arrestors

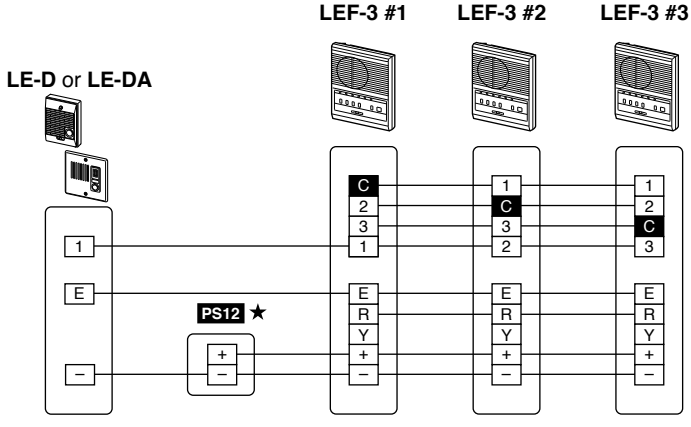
Severe weather conditions, such as lightning storms, may cause damage to LEF equipment.
We recommend that power surge protection be installed as follows: (However, this does not guarantee that no damage will occur).

• Connect the GROUND terminal of the power supply to an earth ground. In this case, a separate surge arrester is not necessary.
• When using a power supply that has no GROUND terminal, install a surge arrestor near the output as shown.
• Additional SA-1 surge arrestors can be installed to protect communication lines. One SA-1 per 2 wires on each master station.



■ Wiring Diagrams

• Three LEF-3 and One Door Station



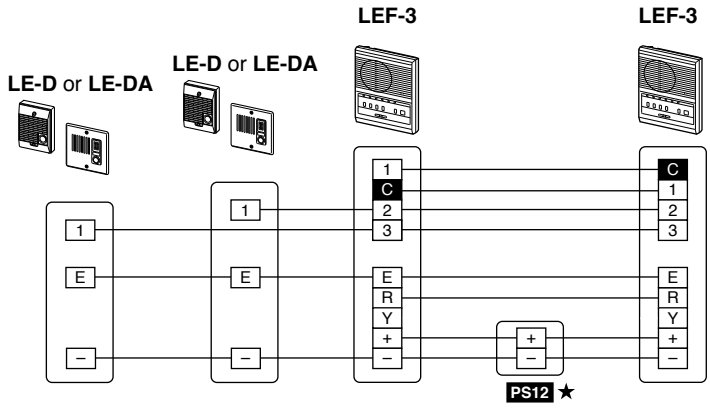
Note: This diagram assigns the master stations as station 1, 2, and 3. The door station is answered on each station's own channel button (1, 2, or 3 respectively).

⚠ Remove the shorting link between [E] and [−] terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL
PS-1225S
PS-1225
PS-1215DIN

★ Connect 12V DC power supply only. Do not connect AC.

• **Two LEF-3 and 2 Door Stations**



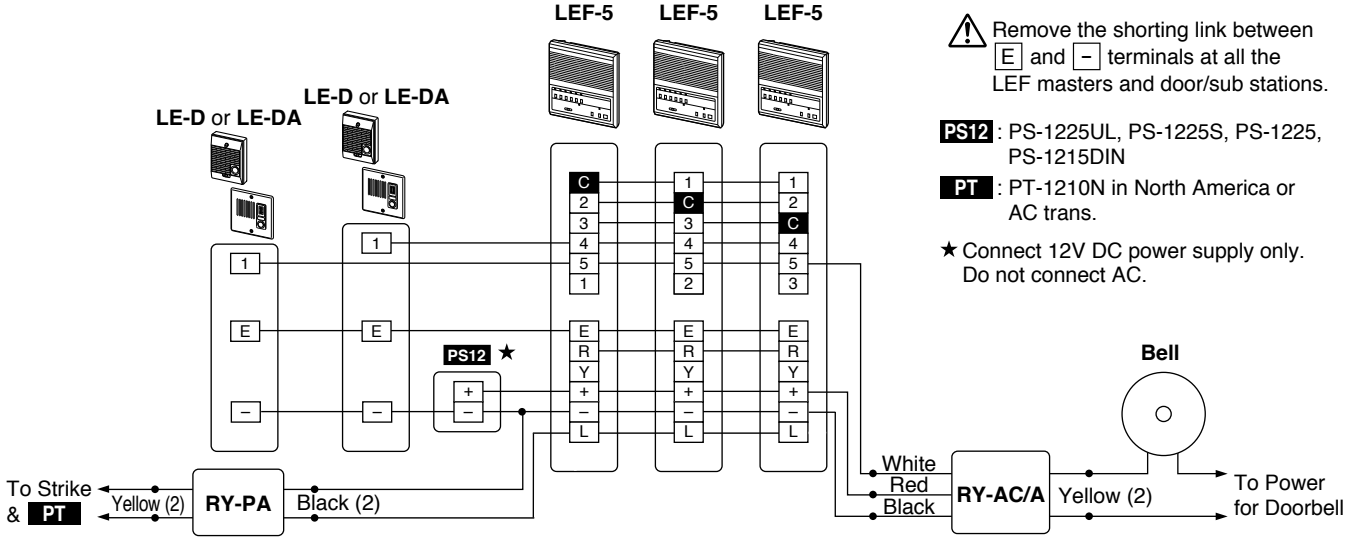
Note: This diagram assigns both master stations to use channel 1 to talk to the other master. The door stations are on channels 2 and 3 respectively.

⚠ Remove the shorting link between [E] and [–] terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL
PS-1225S
PS-1225
PS-1215DIN

★ Connect 12V DC power supply only. Do not connect AC.

■ Three LEF-5 Masters, Two Door Stations with Door Release



Note: This diagram assigns the masters on channels 1 ~ 3, and the door stations on channels 4 and 5. Each station's own channel button is not used in this illustration. External doorbell will ring when door #5 calls in.

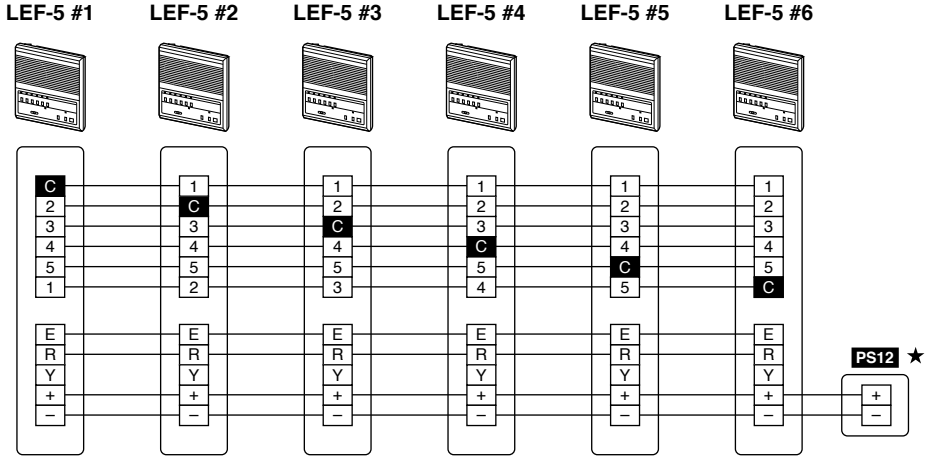
⚠ Remove the shorting link between [E] and [–] terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

PT : PT-1210N in North America or AC trans.

★ Connect 12V DC power supply only. Do not connect AC.

■ Six LEF-5's



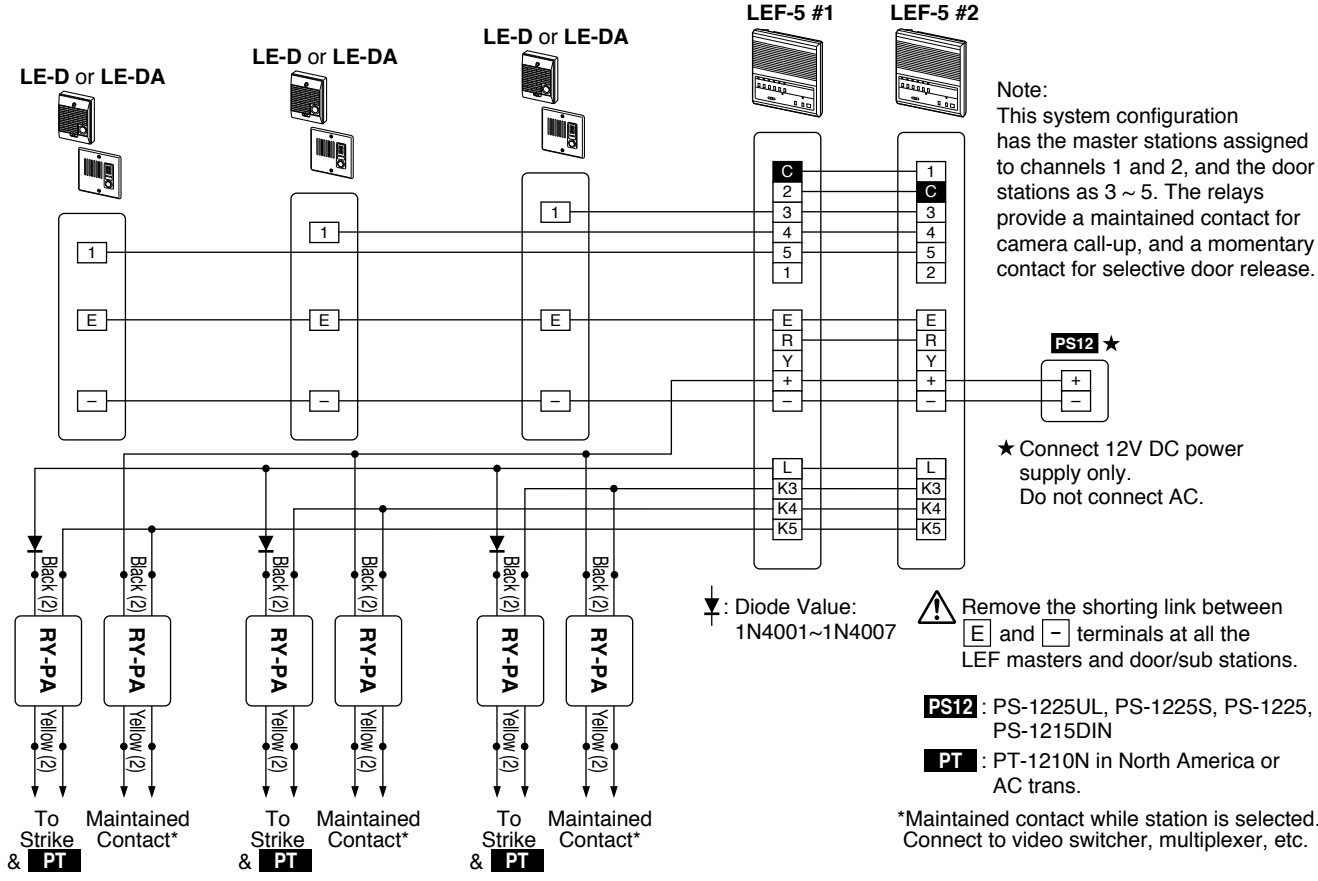
Note: This is an all master system. When one master calls another master, the person at the called master responds handsfree. There is no station LED indicating which master station has called.

⚠ Remove the shorting link between [E] and [–] terminals at all the LEF masters stations.

PS12 : PS-1225UL
PS-1225S
PS-1225
PS-1215DIN

★ Connect 12V DC power supply only. Do not connect AC.

■ Two LEF-5, Three LE-D w/Camera Call-up and Door Release



Note:
This system configuration has the master stations assigned to channels 1 and 2, and the door stations as 3 ~ 5. The relays provide a maintained contact for camera call-up, and a momentary contact for selective door release.

★ Connect 12V DC power supply only. Do not connect AC.

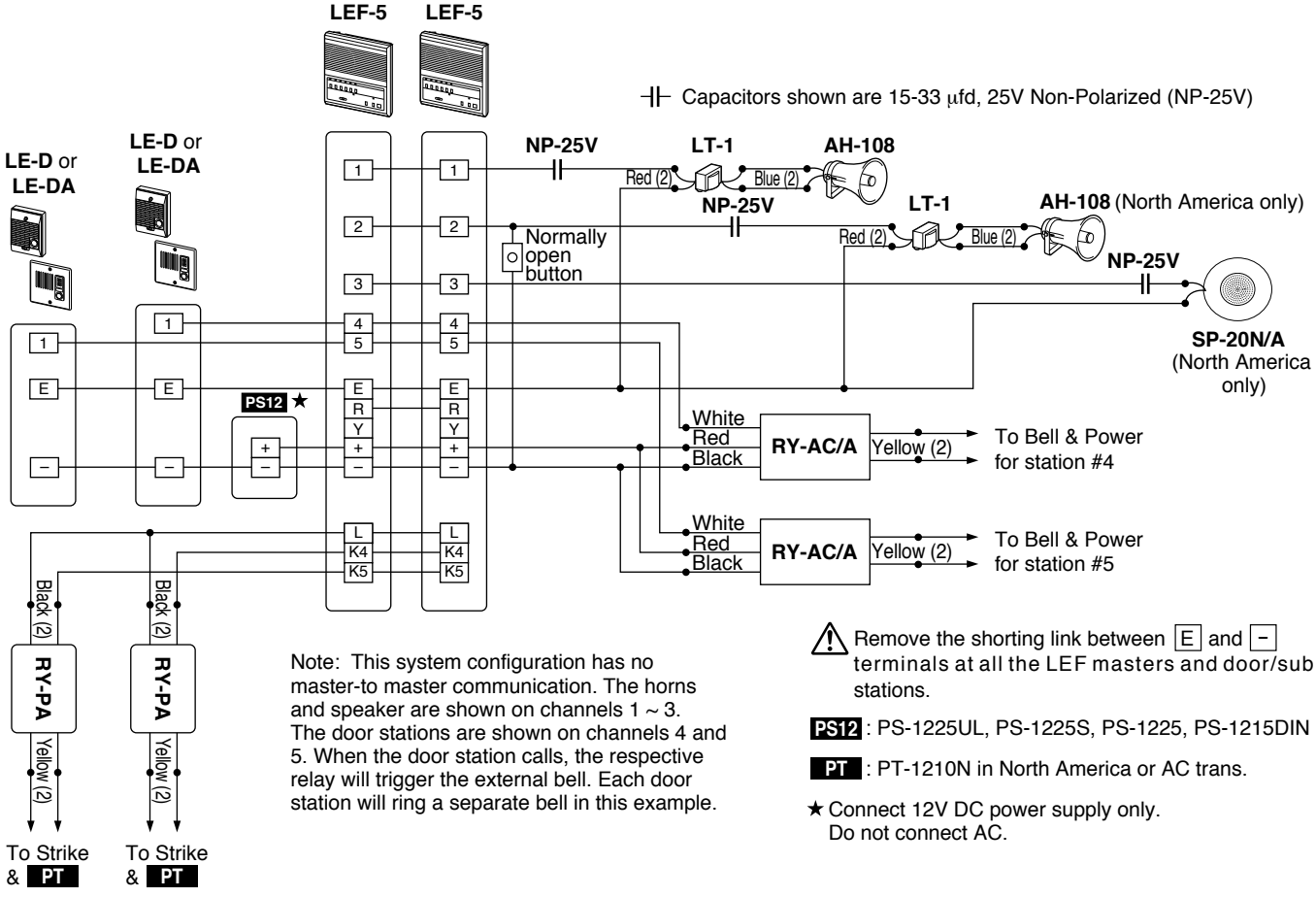
⚠ Remove the shorting link between E and – terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

PT : PT-1210N in North America or AC trans.

*Maintained contact while station is selected. Connect to video switcher, multiplexer, etc.

■ 2 LEF-5, 2 Doors, 3 Speakers with Release and External Signaling



Note: This system configuration has no master-to master communication. The horns and speaker are shown on channels 1 ~ 3. The door stations are shown on channels 4 and 5. When the door station calls, the respective relay will trigger the external bell. Each door station will ring a separate bell in this example.

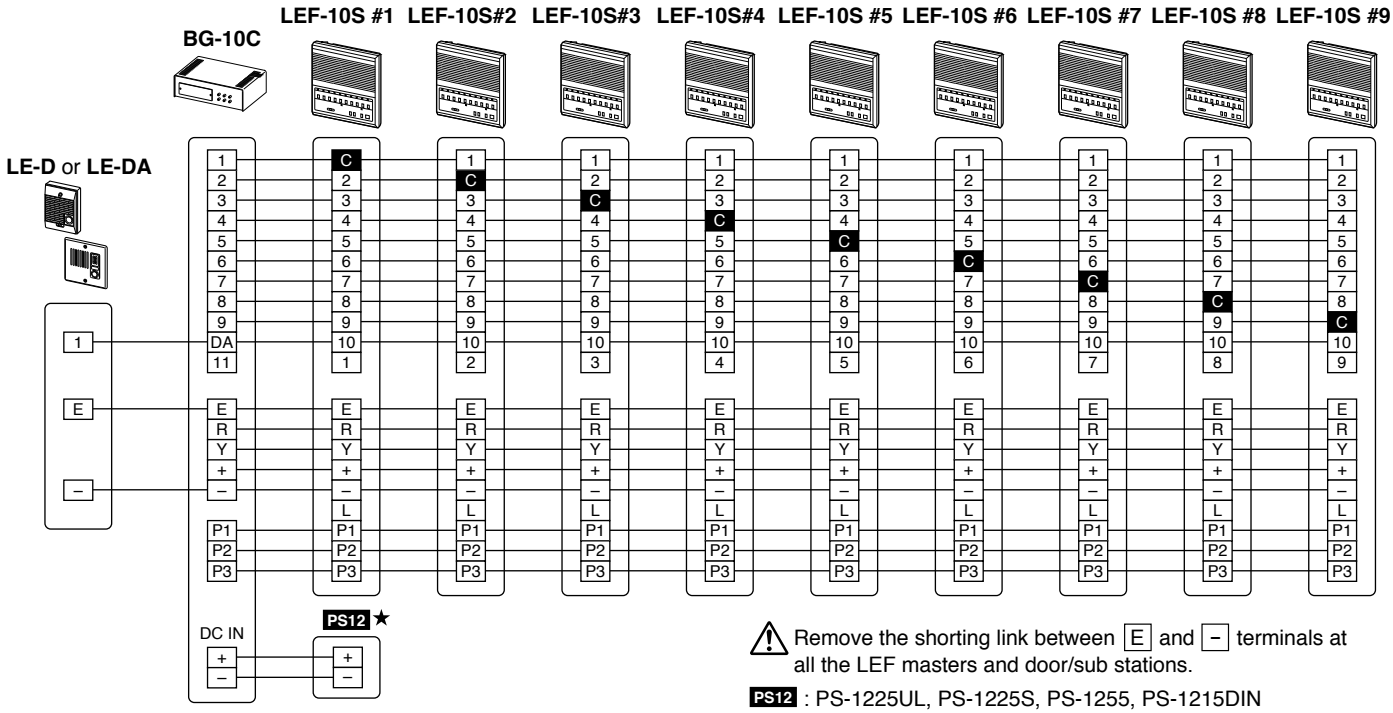
⚠ Remove the shorting link between E and – terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

PT : PT-1210N in North America or AC trans.

★ Connect 12V DC power supply only. Do not connect AC.

■ 9 LEF-10S with BG-10C and 1 Door Station

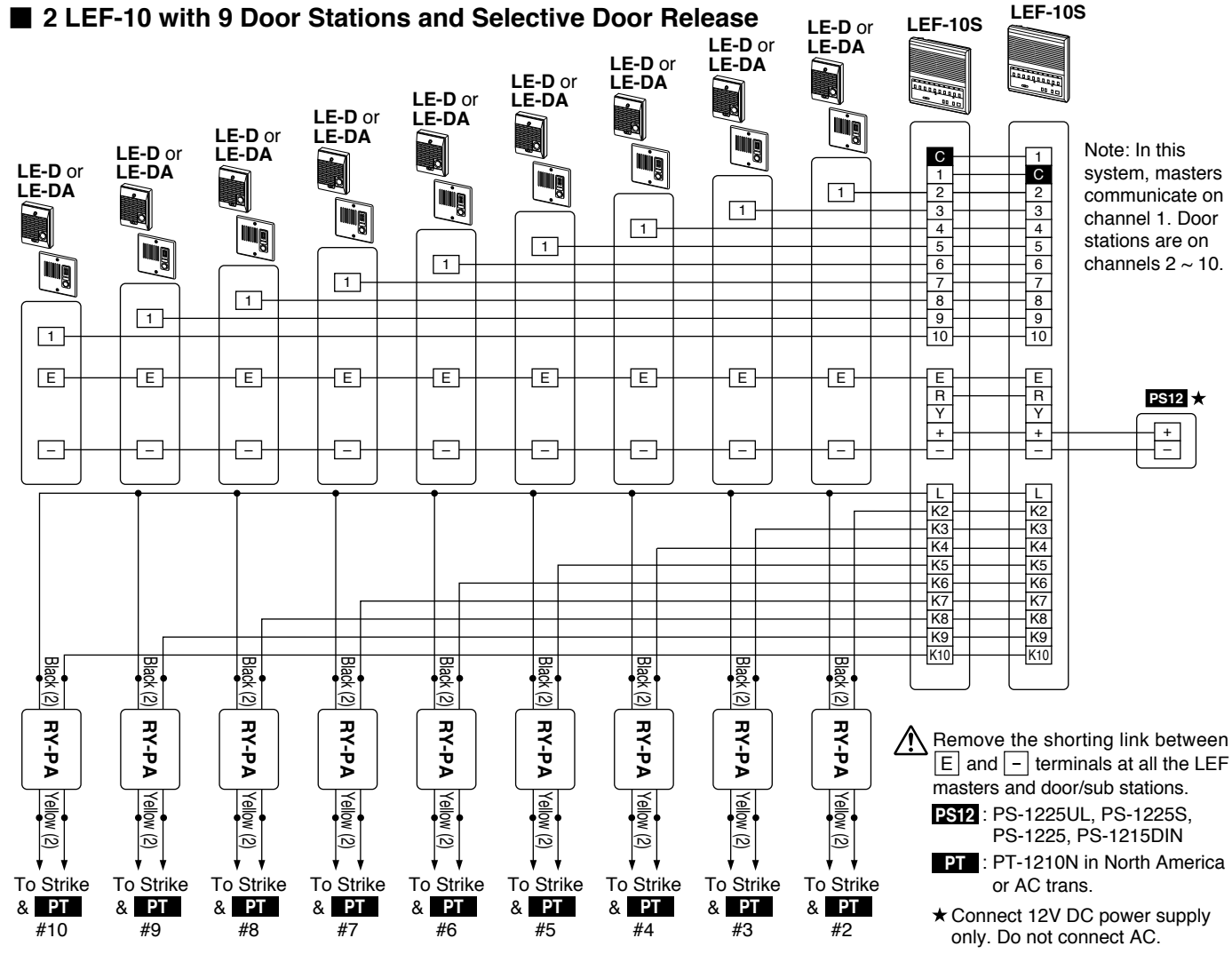


⚠ Remove the shorting link between E and − terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL, PS-1225S, PS-1255, PS-1215DIN

★ Connect 12V DC power supply only. Do not connect AC.

■ 2 LEF-10 with 9 Door Stations and Selective Door Release



Note: In this system, masters communicate on channel 1. Door stations are on channels 2 ~ 10.

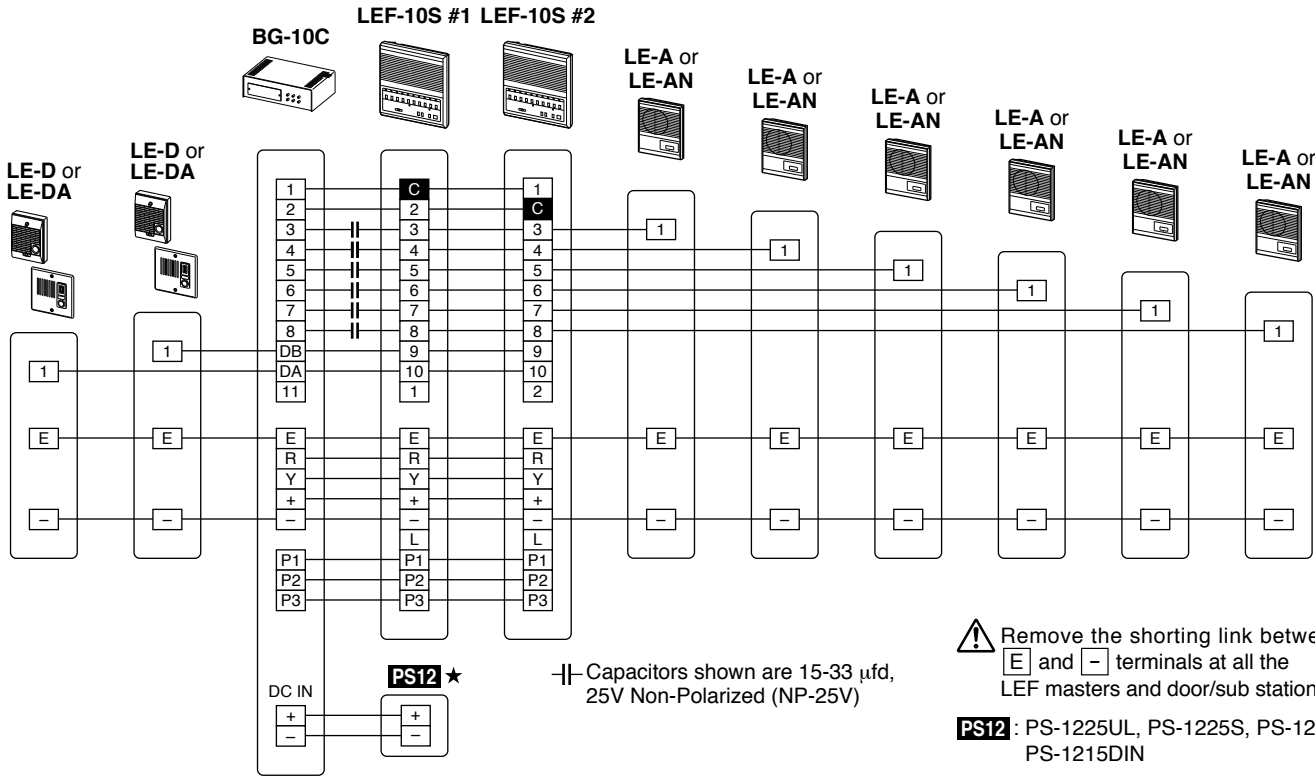
⚠ Remove the shorting link between E and − terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

PT : PT-1210N in North America or AC trans.

★ Connect 12V DC power supply only. Do not connect AC.

■ 2 LEF-10S, 6 Indoor Subs, 2 Door Stations with BG-10C for Chime & All Call



⚠ Remove the shorting link between E and – terminals at all the LEF masters and door/sub stations.

PS12 : PS-1225UL, PS-1225S, PS-1225, PS-1215DIN

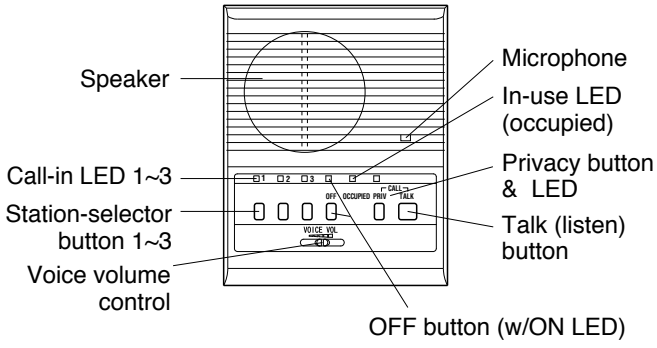
★ Connect 12V DC power supply only. Do not connect AC.

6 OPERATIONS on LEF

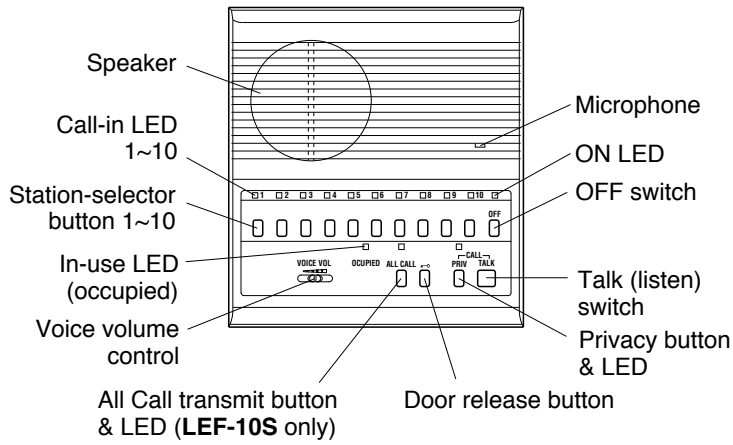
★ **LEF is a single talkpath system. While the Occupied LED is lit, do not attempt to select a station or initiate an All Call.**

★ **If called by a master and sub at the same time, reply to the master's call handsfree first. When the Occupied LED goes off, select the sub station that called.**

LEF-3



LEF-5, 10, 10S



■ Calling a master or sub:

1. Depress a station selector button 1 ~ 10.
2. Push the TALK button to speak, and release to listen to the reply.
3. If you wish to ring a tone as an attention-getter, press the PRIV (privacy) and TALK buttons together. Release the PRIV button and hold the TALK button down to speak to the called station.
4. To conclude, depress OFF button.

■ Receiving a call from a sub station:

1. Sub station calls in with tone and call-in LED, which stays lit for approx. 20 seconds.
2. Depress the lit station selector button.
3. Push the TALK button to speak, and release to listen.
4. Depress OFF button when finished.

■ Receiving a call from another master:

1. When a master calls to another master, no station LEDs light up, and the responding master answers back handsfree.
2. In-use LED will be on while the initiating master has a station selected.
3. Do not press any buttons on the master when responding to another master's call. If the privacy feature is engaged, push TALK button momentarily to release before responding. To set the master in privacy mode after communication, press PRIV button again.

■ Door answering (from a master station only):

1. Audio door station calls in with an electronic call tone & LED, which stays lit for approx. 20 seconds.
   NOTE: A 4-stroke chime tone can be heard through the inside stations when a door station calls in if the BG-10C is included in the system. (Up to 3 door stations can activate chime sound.)
2. Depress the lit selector button, then press TALK to speak, release to listen.

■ Door release with "0" button:

LEF-5, LEF-10, and LEF-10S provide selective door release to multiple doors (one RY-PA for each door). When communication is established to a door station, press the "**0**" button to release the corresponding door strike.

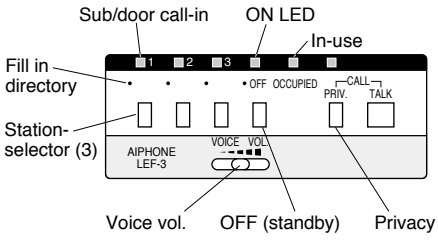
■ All Call with "ALL CALL" button:

On LEF-10S station only, the all call feature allows an announcement to be made to all the stations in the system.

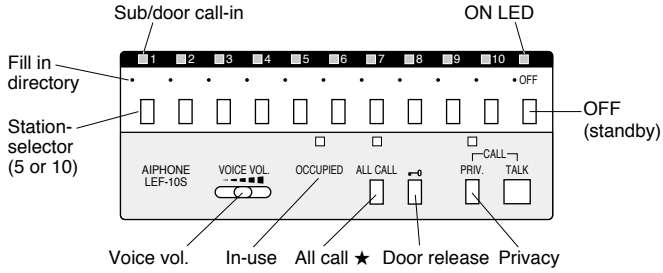
IMPORTANT: The BG-10C is required to make this feature operable.

1. Press ALL CALL button.
2. Press TALK to make an announcement.
3. Press ALL CALL button again to release.

Operation Plate for LEF-3



Operation Plate for LEF-5, 10, 10S



★ LEF-10S only

■ BG-10C All Call, Chime, and Music Adaptor:

Music is selectively distributed to all LEF station speakers, controlled by switch settings in BG-10C.
When any station initiates a call, the music mutes automatically.
When door station calls in, chime tone is transmitted to selected inside stations, controlled by switch settings.

■ Privacy (PRIV) feature:

When PRIV button is depressed, the calling master can call into a station in “privacy” mode, but the “listen” mode is cut off. To release from PRIV, press TALK momentarily.

■ LE sub stations:

To call a master station:
1. Simply press the CALL button, which rings an electronic tone (for as long as button is held). The corresponding LED on the called master station(s) will be lit for approximately 20 seconds.
2. When master replies, speak handsfree.

■ When called by a sub station while talking to another station:

The station’s call-in LED will light for approx. 20 sec., but call tone is muted. (NOTE: If A/B switch is set to "B" position, the call tone will be heard at a muted level, even if the receiving station has another station selected.) Depress OFF button to disconnect from original call, the depress the selector button with lit call-in LED to answer the next call.

7 LEF system Troubleshooting Guide

	Problem	Solution
Single-master system	1. No call tone or call-in LED when sub calls master (2-wire connection).	Make sure jumper is installed between E & – at the subs and the master station.
	2. Call tone works, but no communication, or communication works, but no call tone.	Same as above; E & – jumper must be in place. If 3 wires are used, 1 & – are for call-in, and 1 & E are for communication. Check continuity and connection of wires.
Mulit-master system	3. Master stations cannot call each other.	The C terminal of the master means “CALL”, and allows master-to-master communication. Make sure the C terminal of each master is connected to a designated # terminal on all other masters. (example: C at master 1 connects to the 1 terminal of all other masters.)
	4. Call tone is too loud or too soft.	Adjust call tone volume with slide switch located under operation plate. (Remove plate and use small screwdriver to adjust.)

	Problem	Solution
Mulit-master system	5. Call-in LED lights don't light up when calling master-to-master.	Call-in LEDs only light when a sub station calls. A responding master answers handsfree, and therefore does not have to select a station number.
	6. In-use LED is always on.	Make sure all masters are in the OFF (standby) position. The station whose LED above the OFF button is lit is the one that's on. Check [R] wire for a short to ground. Take [R] wire off of terminal. If Occupied light remains lit, the unit is damaged and needs repair.
	7. Call tone and call-in LED from subs work fine, but no communication, or vice versa.	Check [E] & [–] wires from sub for proper connection to master. See #2 solution above.
	8. When sub calls in, multiple call-in LED lights come on.	Make sure station number wires are not shorted together. Remove all jumpers between [E] & [–] (in multi-master system). Test master station by taking wires off of affected station [#]'s, then touch a jumper wire between a station [#] and [–] . If multiple call-in LEDs light up, the unit has sustained power surge damage and must be sent in for repair.
	9. Door release doesn't work.	RY-PA relay is required for each door to be released. Connect black wires to [L] & [–]. For selective door release, connect RY-PA between [K#] (matching station # that door is on) and [L] , which provides 12V DC when "▪—0" button is pressed.
	10. All Call from LEF-10S doesn't work.	All Call requires the BG-10C Adaptor with power supply.
	11. Chime from door station doesn't work.	BG-10C must be installed. Wire from door station must connect to BG-10C, [1] of door to [DA]/[DB]/[DC] of BG-10C. [–] must be connected from LEF master to BG-10C.
	12. Chime from door works, but electronic call tone in LEF masters also is heard.	Door station should be wired directly to BG-10C or first master. Make sure the A/B switch on the back of the LEF master is in the "A" position. Make sure [R] line is connected between LEF master and BG-10C.
	13. All Call doesn't work, but BG-10C is included in system.	Check connection from [P1], [P2], [P3] terminals from LEF-10S to BG-10C. [P1] should be 10V DC or higher when All Call button is engaged. [P2] and [P3] carry the voice signal from the initiating master to the BG-10C. Be sure to press TALK while making an All Call announcement, and press All Call button when finished.
	14. All Call pretone and voice volume are too loud or too soft.	Adjust volume levels on front of BG-10C (located behind metal cover plate).
	15. When an All Call is initiated, all of the LEDs corresponding to sub station channels light up.	Make sure jumpers between [E] & [–] are removed. When using the BG-10C for All Call in a system with sub stations, a non-polarized capacitor (NP-25V) must be installed in series on each station # line that a sub station is on between the BG-10C and LEF-10S. (See diagram on pg. 12)
	16. Feedback is heard between intercom stations in adjacent rooms.	Intercom stations should not be mounted back-to-back on the same wall. If they are, they must be installed at least 60cm (2') apart with insulation isolating them. Adjust voice volume control downward to eliminate feedback.
	17. Communication to another station is very weak.	Adjust "Voice Vol." upward. Make sure the [1] and [–] terminals from sub to master are not reversed.
	18. LEF system has AC hum when listening to another station from a master station.	System wiring must be run at least 50cm (20") away from AC wiring, fluorescent lights, or dimmer switches. Wires can cross AC at 90 degrees. If shielded wire was used, tie all of the shields together and ground one end to an earth ground. If noise persists, isolate source of the noise and separate the intercom from the source.

8 TECHNICAL PRECAUTIONS

IMPORTANT:

- Aiphone is not responsible for improper installations of its product which result in interference generated by dimmer switches, fluorescent lighting fixtures or other similar electrical devices. Any such installation must be corrected at the source by the installing party. Aiphone also recommends that when installing any of its communication products that the intercom wiring be run at least 50cm (20") away from any AC wiring.

- Cleaning: Clean the units with a soft cloth and gentle cleaner. Do not spray cleaner directly on unit. Do not use an abrasive cleaner or cloth.

9 SPECIFICATIONS (LEF)

Power source: 12V DC, 300mA per station.
Use one PS-1225UL, PS-1225S, PS-1225, or PS-1215DIN power supply per system.

Communication: Push-to-talk, release-to-listen at master station.
★ Master-to-master calling does not turn on station LED at receiving master.

Talk channel: 1 channel (talkpath). Occupied LED is lit when the system is in use.

Output: 800mW at 20Ω (reception). 500mW at 20Ω (transmission).

Wiring:
- Single-master system: 2 wires homerun.
- Between LEF masters: Min. 4 common(*) + 1 wire per number of stations in the system, looped (See pg. 3)
  (*)9 common wires are required if All Call and Door Release are included, plus total number of stations in the system (plus add'l wire per door if selective door release is included).
- Intermixed system: 3 wires per sub, homerun to the nearest master, or 2 common + 1 individual wire per sub, looped.

Door release button contact: ("▬O") 30V DC, 0.1A (resistance load).

Select switch contact: 12V DC, 30mA (for external device control).

Wiring distance:

0.65mmϕ	0.8mmϕ	1.0mmϕ
200m	300m	480m

22AWG	20AWG	18AWG
650'	1,000'	1,600'

Dimensions & weight:

LEF-3: 180 H x 143 W x 55 D (mm). 7-1/16" H x 5-5/8" W x 2-3/16" D.
420g, 0.93 lbs. approx.

LEF-5, 10, 10S: 206 H x 190 W x 55 D (mm). 8-1/8" H x 7-1/2" W x 2-3/16" D.
550g, 1.21 lbs. (LEF-5). 650g, 1.43 lbs. (LEF-10, 10S).

WARRANTY

Aiphone warrants its products to be free from defects of material and workmanship under normal use and service for a period of one year after delivery to the ultimate user and will repair free of charge or replace at no charge, should it become defective upon which examination shall disclose to be defective and under warranty. Aiphone reserves unto itself the sole right to make the final decision whether there is a defect in materials and/or workmanship; and whether or not the product is within the warranty. This warranty shall not apply to any Aiphone product which has been subject to misuse, neglect, accident, power surge, or to use in violation of instructions furnished, nor extended to units which have been repaired or altered outside of the factory. This warranty does not cover batteries or damage caused by batteries used in connection with the unit. This warranty covers bench repairs only, and any repairs must be made at the shop or place designated in writing by Aiphone. This warranty is limited to the standard specifications listed in the operation manual. This warranty does not cover any supplementary function of a third party product that is added by users or suppliers. Please note that any damage or other issues caused by failure of function or interconnection with Aiphone products is also not covered by this warranty. Aiphone will not be responsible for any costs incurred involving on site service calls. Aiphone will not provide compensation for any loss or damage incurred by the breakdown or malfunction of its products during use, or for any consequent inconvenience or losses that may result.

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